Transfer of Large Volume DNA Data

Project Title	Transfer of Large Volume DNA Data
Project Summary	Research methods for transferring large volumes of data from locations with poor data infrastructures.
Country	United States

Project Description

Interns will produce a research paper exploring options to transmit large volumes of encrypted DNA-related data. During a disease outbreak, it may be helpful to transmit DNA sequences to locations with greater capabilities to analyze them. Each DNA sequence file is between 5-10 gigabytes and multiple samples may need to be transmitted. Often outbreaks occur in locations with poor digital infrastructure, so high speed connectivity may not be available. Additionally, due to potential patient privacy concerns and the security and reliability of available networks, it may be necessary to encrypt the data. For this challenge, assume transferring data on hard drives is not possible.
The final product of this project is a research paper detailing potential solutions to the above challenges, a discription of any use cases developed, and a copy of any data used to validate the potential solution.
There may be multiple paths to a viable solution. Computer scientist and data experts may employ hardware or software approaches to improve compression or data throughput. Bioinformatists may approach this by working with the data itself and developing methods to limit the amount of data transmitted. Any solution must ensure the integrity of the data.

Required Skills or Interests

Skill(s)
Research

Additional Information

Required Skills: Computer Science, informatics, bioinformatics, data and network management

Language Requirements

None